

Appln. No. 09/327,523
Reply Dated April 17, 2006
Reply to Office Action of November 15, 2005

REMARKS

Claims 1-3, 5-7, 15-17, and 20-21 were rejected under 3 U.S.C. 103(a) as being unpatentable United States Patent No. 5,898,168 to Gowda in view of United States Patent No. 6,031,571 to Arakawa. Applicant first notes that the invention of Arakawa, as described at column 1, lines 9-22, relates to a solid-state imaging device which relates provides a horizontal transfer CCD (Charge-Couple Device) 103 and vertical transfer CCDs 102. In contrast, Applicant's invention as described at page 1 relates to "... an amplification type solid-state imaging element such as a CMOS image sensor..." Thus, Applicant asserts that art relied upon by the Examiner is non-analogous art.

Applicant next notes that the reset transistor of Arakawa is not positioned within the imaging area. As described at column 1, lines 27-30, the "output area 104 includes ... a reset gate ..." As clearly shown in Figure 1, the output area 104 is remotely positioned from the photosensitive pixels 101. Because an object of the present invention is to reduce the pixel size, it would not be obvious to reposition a transistor previously positioned remotely of the image area to a position within the image area. Applicant also notes that the Examiner's finding that it would have been obvious for one of ordinary skill in the art to modify the system of Gowda to include a depletion type transistor such as that taught by Arakawa is incorrect. Applicant notes that for purposes of efficiency and simplification of the manufacturing process, when the amplification transistor of the pixel is an enhancement type transistor as described in the prior art, the reset transistor is also an enhancement type transistor. This is due to the fact that all

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transistors are typically formed during the conventional manufacture of an imaging element at the same time with the same processing techniques. Accordingly, contrary to the Examiner's assertions, it would not have been obvious to utilize the depletion mode transistor of Arakawa as asserted by the examiner because it would have been unusual and extraordinary to form the reset transistor in a different manner.

A proper prior art rejection under 35 USC section 103 requires that there must be some teaching or motivation set forth in the prior art as a whole which indicates to those of ordinary skill in the art that these structures of the prior art references should be combined as asserted by the Examiner. Significantly, in the present circumstance, the Examiner has failed to satisfy this requirement and therefore the rejection is improper. More specifically, it is inappropriate to selectively pick and choose structures from the prior art and combine them as the Examiner has in the present circumstance to cobble together an obviousness rejection. It is only with Applicants invention that the use of the depletion mode transistor as claimed becomes apparent. Thus, it would not be obvious for one to combine the enhancement type transistors of Gowda with the depletion type transistor of Arakawa.

Applicant respectfully request that the Examiner withdraw the rejection of claims 1-3, 5-7, 15-17 and 20 and 21 and that the claims be found allowable.

Claims 1-3, 6, 8, and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,949,483 to Fossum in view of Arakawa. As noted above, Arakawa relates to a CCD type device and is therefore non-analogous art. As also noted above Arakawa

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discloses the use of a depletion type transistor in connection with an output area 104 which is remotely located with respect to the imaging area. Thus, it would not have been obvious to modify the invention of Fossum in accordance with the teachings of Arakawa to arrive at Applicant's invention. Applicant again asserts that no motivation is provided to combine the references cited by the Examiner. Applicant asserts, therefore, that the Examiner's rejection of claims 1-3, 6, 8 and 15 is improper and should be withdrawn and that the claims should be found allowable.

Should the Examiner have any questions regarding this Response, he is invited to contact the undersigned at (312) 704-1890.

Respectfully submitted,

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